that your Lower Middle Schools have not succeeded. To what is this ascribed?"

"It would be more correct to say that they have not succeeded throughout. Moreover, M. Thorbecke was never under any delusion on this point. He considered the Lower Middle Schools as placed for the future. The proof is that he got inserted in the law a clause which enacts that the Government may for a certain number of years exempt a communal council from the obligation of erecting a Lower Middle School if it is probable that a sufficient number of pupils could not be obtained to attend it. It is necessary first that the economical condition of the country should be improved. Remember that in Holland wages are in general lower than in all the surrounding countries. We cannot blame our poor artisans for requiring their children to earn some money at the age when these would enter the Middle School."

Such is a *résumé* of what I have seen and heard in Holland.

NOTES

AT the meeting last week of the delegates of the French Learned Societies at the Sorbonne, the Science Section was divided into three committees—Mathematical, Physico-chemical, and Natural History. The general meetings of the three sections were presided over by M. Leverrier, who developed at full length the organisation of agricultural warnings which have been established in Puy de Dome, Vienne, and Haute Vienne, and will be in operation from May 1 to October 15, when agriculturists have practically nothing to lose in the fields. About thirty stations have been established in each of these departments and connected by telegraph with the chief towns of the district. Each local observatory will receive telegraphic warnings through the préfet of the department, to whom will be sent daily the telegrams of the International Service. All these warnings will be posted at the stations and special warnings for the vicinity deduced by local meteorologists. All the observations taken on these stations will be sent to the observatory and tabulated under the supervision of M. Leverrier. The system will very likely be extended to other departments. The distribution of prizes was held on the 22nd in the large hall of the Sorbonne. The Minister of Public Instruction, M. Waddington, gave an address, in which he promised to create new libraries, new faculties, and to group new faculties in order to establish Universites. It is inferred thence that M. Waddington, who, as is well known, is a Cambridge man belonging to Trinity College, will try to remodel the French high schools according to the English method. The old Université de France is, perhaps, to be divided into the Universities of Paris, Lyons, Lille, Marseilles, and Toulouse. M. Waddington's address has created quite a sensation amongst French University men. Five gold medals were awarded—to MM. Abria (Bordeaux), for physics; Clos (Toulouse), for botany; Dumartier (Lyons), palæontology; Filhol (Toulouse), geology; Lortet (Lyons), zoology and palæontology. Ten silver medals were also awarded in botany, zoology, and natural philosophy. In connection with this meeting, M. Lecoq de Boisbandran has been made a Chevalier de la Legion d'Honneur. Several other scientific men have been appointed *officiers* of the University and *officiers* of the Paris Academy, which are special honorary degrees in acknowledgment of some special services either in the prosecution of scientific researches, or in carrying out the results of the scientific investigations of other people.

A TREASURY COMMISSION has just been appointed by Government for the purpose of inquiring into and reporting on the Queen's Colleges in Ireland. The Commissioners are the Rev. Osborne Gordon, of Christchurch, Oxford; Prof. Allman, F.R.S., M.R.I.A.; and Mr. Herbert Murray, Treasury-Remembrancer in Ireland; with Mr. B. Leech as Secretary.

SIR ROBERT CHRISTISON has resigned the position of President-elect of the forthcoming Glasgow meeting of the British Association. Dr. Andrews, of Queen's College, Belfast, has been nominated by the Council in his stead.

THE French Geographical Society are to invite Lieut. Cameron to Paris to a special meeting of the society, to be held for the purpose of marking the appreciation of his merits felt in France.

THE freedom and livery of the Turner's Company were presented at the Guildhall, on Saturday, to Lieut. Cameron and Dr. Atherstone, to whose labours as a geologist the discovery of the value of the South African diamond fields is principally due.

ADMIRAL LA RONCIÈRE LE NOURRY has been reappointed by a large majority the President of the French Geographical Society.

THE French Minister of Public Instruction has given instructions for a series of observations to be made on all the streams of oceanic France, in order to determine the formation of the bar. Stations will also be established on the French coasts for observations of the tides. The previous French observations were made at Brest as far back as 1770, and on them the calculations in Laplace's "Mécanique Celeste" were based.

THE conversazione given last Friday evening at King's College by Mr. H. C. Sorby, F.R.S., to the Fellows of the Microscopical Society (of which Mr. Sorby is president) and their friends, was a brilliant and successful one. One of the greatest novelties exhibited was a new binocular spectroscope, illustrating Mr. Sorby's important discovery of a new method of measuring the position of the bands in spectra.

WE would remind our readers that the afternoon lectures at the Zoological Gardens commence to-day at 5 P.M., the first being by Mr. Sclater, F.R.S., "On the Society's Gardens and its Inhabitants." They will be continued on Thursdays for the next nine weeks.

THE first annual meeting of the Cumberland Association for the Advancement of Literature and Science, will be held at Whitehaven on May 1st and 2nd.

IN Guido Cora's *Cosmos* for April the valuable information on recent expeditions to New Guinea is continued. There is a paper by Major Wood on the Oxus in the time of Alexander, an account of Cameron's work, the continuation of G. Bove's narrative of his visit to Borneo, besides other matters of geographical interest.

PETERMANN'S *Mittheilungen* for April contains an account of the results obtained by Lieut. Cameron to accompany the excellent map of the country explored, which we have already referred to. There is an interesting account of the ascent of the two Norwegian summits, Galdhöpig and Sneehätta, by Hauptmann M. Riuth. Along with a map of New Zealand there is a long article by J. I. Kettler, showing the recent progress of that colony. Drs. Radde and Sievers furnish an interesting preliminary account of their recent travels in Caucasia and the Armenian highlands.

IN the *Bulletin* of the French Geographical Society for March, Dr. Nachtigal's account of his journey in Central Africa (1869-74) is concluded, as is also the account of Abbé David's travels in Western China in 1868-70, and M. J. Codine's paper on early Portuguese discoveries on the West African Coast. There is an itinerary from Tangier to Mogador, by M. Auguste Beaumier.

The Physical Society of Paris held its Anniversary Meeting last Thursday.

On Saturday, the *Times* states, there was exhibited in Wolverhampton a meteorolite weighing 8 lbs. It is believed to have fallen on Thursday afternoon in a turf field in a meadow near the Wellington and Market Drayton Railway, about a mile north of the Gradgington Station. It is stated that about ten minutes to four, within a seven miles' radius of the Wrekin, the villagers were alarmed by an unusual rumbling noise in the atmosphere, followed immediately by an explosion resembling the discharge of heavy artillery. Rain was falling heavily throughout the afternoon, but there was neither lightning nor thunder. About an hour after the report what proved to be a mass of meteoric iron was found in the meadow referred to at a depth of 18 inches, having passed through 4 inches of soil and 14 inches of clay. It rested upon the gravel underneath these. The hole is almost perpendicular, and the meteorolite is assumed to have fallen in a south-easterly direction. It is stated that the meteoric stone when found was quite hot, although nearly an hour had elapsed from the time of the explosion being heard.

The more important articles in the *Quarterly Journal of the Meteorological Society* (London), April, 1876, are the President's Address, the Report of the Council for 1875, a paper by the Hon. Ralph Abercrombie on an improvement in aneroid barometers, and another by Colonel Puckle on Meteorology in India in relation to Cholera. The work of establishing stations begun by the Society in 1874 proceeds satisfactorily, and the Council deserve all praise for the ample details given regarding the twenty-two stations they have now established, and particularly for the valuable addition to this part of the Report, consisting in the lithographed ground-plans of the individual stations, which show the positions and surroundings of the different instruments. We regret, however, to see that the mistake in science regarding the height of the thermometers above the ground, pointed out by us (vol. xi. p. 446) still remains to be rectified, for while exact and minute directions are given respecting the various instruments, each observer is apparently left to his own discretion as to the height at which he places his thermometers. The president's remarks on lightning-rods will be read with interest; and Mr. Abercrombie's improvement on aneroids may be noticed as likely to lead to a more satisfactory observation of small barometrical fluctuations, on a correct knowledge of which so much depends.

We have received the Programme for Easter, 1876, of the Realschule of Lippstadt. Besides a carefully arranged prospectus of the studies of the school, from the lowest to the highest class, which, in the number and nature of the subjects taught, would make most English teachers stare with wonder, there is an admirable paper by our contributor, Dr. Hermann Müller, who is a master in this school, on the system of teaching Natural History at Lippstadt.

In a four-page monthly journal published at Laurence, Kansas, U.S., called *The Observer of Nature*, the first five numbers of vol. iii. of which have been sent us, Prof. F. H. Snow gives a catalogue of the Lepidoptera of Eastern Kansas. It is published by the Natural History Society of the Kansas State University, the Vice-President, Secretary, and Treasurer of which are ladies, and which has on its list an officer known as "Critic."

What seems to have been an interesting and successful conversazione was given by the University School Naturalists' Field Club, Hastings, on Saturday week. A number of papers on subjects connected with natural history were read by the boys.

Professors Jordan and Copeland, of Indianapolis, Indiana, U.S., are organising a scientific excursion for next summer for the benefit of those wishing to study practically the botany and zoology of the United States. They think that possibly some young Englishmen visiting the American continent during the Centennial, might wish to join such an expedition.

The degree of LL.D. has been conferred upon Prof. Stanley Jevons, F.R.S., by the University of Edinburgh.

To-morrow evening, at the Royal Institution, the discourse will be given by Mr. G. J. Romanes (on the Physiology of the Nervous System of the Medusæ) instead of Prof. Gladstone, who will give the discourse on May 5th.

The time-honoured New York Lyceum of Natural History has lately changed its title to that of the New York Academy of Sciences, and has published a circular explanatory of its object in so doing, referring to the fact of having published eleven volumes of its Annals. The circular proceeds to state that the limitation of the Society to the subject of natural history is at present unwise, and that if it desires to take a position among the first institutions of the kind at home and abroad, its scope should be greatly enlarged and its title altered to correspond. Although for many years past attention has been paid to chemistry and physics, this is not indicated in its name, and misapprehensions are likely to arise in consequence. Under the new constitution, the direction of the affairs of the Academy is placed in the hands of a body of Fellows chosen for their attainments in science, and four sections have been established, into one or the other of which all members are to be placed. These are first, zoology, botany, and microscopy; second, chemistry and technology; third, geology and mineralogy; fourth, physics, astronomy, and mathematics. Each of these has its own special administration, and is charged with the scientific work of its department. The Annals will be continued under the title of Annals of the New York Academy of Sciences, four numbers being issued every year.

A New Zealand correspondent states that he met with a curious instance of tenacity of life in the eel lately in Tasmania. Seven years ago a man placed an eel which had been slightly injured along with others in a tank from which he was in the habit of removing them for use constantly as required. The box in which they were kept was perfectly tight and fitted with finely perforated zinc at each end, through which nothing but the most minute organisms could pass. A few days afterwards, when the others were all taken out, the injured eel was left, and so again, when the next supply was put in and removed. It had got very thin, and so he left it, he said, "just to see how long it would live on nothing." It is still in the tank, perfectly transparent and quite white, and is to all appearances healthy and lively enough.

Parts 3 and 4 of Mr. J. Clifton Ward's paper on the Granitic, Granitoid, and Associated Metamorphic Rocks of the Lake District, has been reprinted separately for the *Quarterly Journal of the Geological Society*.

A fossil cockroach and earwig (*Labidura*) from South Park, Colorado, is described by Mr. S. H. Scudder in the Sixth Bulletin of the United States Geological Survey of the Territories.

A "School of Science Philosophical Society" has been for some time established at Gloucester. The members seem bent on real work, and have already formed the nucleus of a good scientific library.

The Fifteenth Annual Report of the Manchester Scientific Students' Association for 1875 is a very satisfactory one. It contains an account of the excursions made during the year, and also reports of several very good papers read by the members, THE additions to the Zoological Society's Gardens during the past week include a Weeper Capuchin (*Cebus capucinus*) from Brazil, presented by Major F. J. Ricarde Seaver; a Common Otter (*Lutra vulgaris*), European, presented by Mr. J. Herbert; a Grey Squirrel (*Sciurus cinereus*) from North America, presented by Mrs. M. E. Symons; a Yarrell's Curassow (*Crax carunculata*) from South-east Brazil, presented by Mr. Aug. Ceiyoto; a Scaup Duck (*Fuligula marila*), European, presented by Mr. H. Colliver; two Common Thicknees (*Œdicnemus crepitans*), European, presented by Mr. J. E. Harting; a Coati (*Nasua nasica*) from South America, two Silky Marmosets (*Midas rosalia*) from Rio Janeiro, Brazil; five Graceful Pigeons (*Columba speciosa*) from South America, purchased; a Molucca Deer (*Cervus moluccensis*), born in the Gardens.

SCIENTIFIC SERIALS

THE current number of the *Journal of Anatomy and Physiology* commences with a paper by Dr. A. Ransome on the relative powers of fresh and previously used pepsine in the digestion of albumen, in which it is demonstrated that pepsine has greater activity after it has been used than when fresh, in which respect it is shown to agree with ptyalin, as shown by Dr. Foster, and with pancreatin according to Thiersch.—Following is a contribution on the anatomy of the cutis of the dog, by Dr. Stirling, with two plates, republished from the *Berichte d. Math. Phys. Classe der König. Sächs. Gesel. d. Wiss.*, 1875.—Mr. R. H. A. Schofield makes observations on taste-goblets in the epiglottis of the dog and cat, closely resembling the same structure in the tongue.—Dr. J. Blake, of San Francisco, describes the physiological action of the salts of beryllium, aluminium, ytrium, and cerium, by injecting them into the blood.—Dr. Brunton shows that Condurango is physiologically inert.—Mr. J. C. Ewart has a note on the abdominal pores and urogenital sinus of the lamprey, in which he demonstrates that the ureters and internal abdominal pores open into a urogenital sinus which opens behind the rectum on a papilla.—Mr. E. Thurston determines the length of the systole of the heart, as estimated from sphygmograph tracings, in which, from a series of measurements, he verifies Mr. A. H. Garrod's law that in health the systole, as indicated in the radial artery, is constant for any pulse-rate, and varies as the cube root of the rapidity.—Mr. A. M. Marshall explains the mode of oviposition of Amphioxus, verifying Kowalevsky's observation that the ova escape by the mouth.—Mr. F. Darwin describes the structure of the snail's heart histologically. No nervous mechanism was found. The contractile tissue is striated, and the fibres of the auricle and ventricle are continuous.—Dr. Stirling notes the effects of division of the sympathetic nerve in the neck of young animals.—Prof. Turner describes the structure of the non-gravid uterine mucous membrane in the kangaroo, and makes a note on the dentition of the narwhal.—Mr. F. M. Balfour continues his valuable account of the development of the Elasmobranch fishes, with five excellent plates and many woodcuts.—Mr. P. H. Carpenter makes remarks on the anatomy of the arms of Crinoids, his results being arrived at from sections of decalcified specimens.—Dr. Foster describes some effects of Upas Antiar on the frog's heart, demonstrating that the resulting tetanus is brought about by an extraordinary prolongation of the diastole, and not by a too rapid sequence of beats. The arguments for and against the existence of both accelerator and inhibitory fibres in the heart are discussed, in relation with the influence of antiar; and the assumption of the existence of specific accelerator fibres is shown to be unnecessary.—Dr. Curnow notes variations in the arrangement of the extensor muscles of the fore-arm.—Dr. Brunton explains a simple method of demonstrating the effect of heat and poisons upon the heart of the frog.—Mr. G. A. Berry and Prof. Rutherford note with reference to Pflüger's law of contraction, that the excitability and length of the portion of nerve traversed by the voltaic stream must be taken into account in studying the changes of the electrotonic state.—Prof. Rutherford notes with regard to the action of the internal intercostal muscles, their elevating action, as rendered evident by binding similarly situated elastic bands to the ribs themselves.—Mr. Reoch has a paper on the oxidation of urea.—Mr. R. Hughes describes an improved freezing microtome, in which ether spray is the cold-producer.—Dr. S. Coupland records an example of Meckel's diverticulum in man.—The Report on Physiology, by Dr. Stirling, concludes the number.

Poggendorff's Annalen der Physik und Chemie. Ergänzung, Band vii. Stück 2.—In this number is concluded M. Voigt's paper on determination of the constants of elasticity of rock salt; the case of torsion being here dealt with. Comparing his general results with Navier and Poisson's theory, he finds they contradict it in some points, *e.g.* the crystals of the regular system do not behave, in reference to elasticity, like uncrystalline media; for the bending and torsion coefficients are *not* independent of the direction; the constants also have different relative values.—M. Obach describes some interesting experiments on the behaviour of amalgams and metallic alloys under the galvanic current. He finds (1) that the current does not produce in either electrolytic separation of the constituents; (2) that sodium amalgam, after being traversed by the current, decomposes water at both poles as before; (3) that action of the current alters neither the hardness nor malleability of tin-lead alloys, nor the liquid state of potassium-sodium alloy. It works in the chemical composition of the alloy near the electrodes no changes exceeding errors of experiment and analysis. In all these points the author opposes M. Gerardin, who, a short time ago, published experiments on the subject. As to the electric currents occurring in amalgamation of metals, M. Obach regards them as thermo-electric currents due to the temperature changes produced by amalgamation.—M. Clausius contributes a lengthy memoir on the proposition of the mean ergal and its application to the mechanical motions of gases; and a paper by M. Weinberg treats of the application of the mechanical equivalent of heat to molecular forces, size, and distance.

Zeitschrift der Oesterreichischen Gesellschaft für Meteorologie, Jan. 1.—An article extracted from the Proceedings of the Vienna Academy, containing the results of Prof. Kerner's studies and observations, in the neighbourhood of Innsbrück, on the abnormal rise of temperature with increasing elevation in the valleys of the Alps in late autumn and in winter, occupies nearly the whole of this number. The phenomenon occurs every year without fail in this district, and has been observed in Carinthia, Upper Austria, the Tyrol, and Switzerland. The number of farmhouses upon the mountain sides at an inconvenient distance from the pastures below shows that the inhabitants are well aware of the milder climate to be found at moderate altitudes. While frost reigns in the valleys and trees are leafless, the grass and trees upon the heights frequently keep beautifully green, and flowers that bloom elsewhere in autumn and even in spring bloom in the genial air. The valley folk say at such times that the south wind blows aloft and will soon descend to them. Prof. Kerner acknowledges the plausibility of this notion, but gives good reasons for believing it to be ill-founded. It is true that the equatorial current does descend upon the valleys, gradually displacing the polar, but in the first half, at least, of the period of reversed temperature, none of the signs of a south wind appear in the atmosphere, barometric pressure keeps very high, and the sky clear. The latest uncommonly long spell of seventeen days with reversed temperatures, from Oct. 25 to Nov. 10, 1874, enabled Herr Kerner to ascertain the real cause of the strange and hitherto perplexing phenomenon. From an ascent of the Unnutz (2,111 metres), he learnt that the warm region in every valley lies between two cold regions, whose borders differ in position in every valley. The situation of the nether border of the warm region certainly depends on the height of the bottom of the valley. He reached this border at about 200 metres above the level of the Inn, or 700 metres above the sea, and passed out of the warm region into an atmosphere colder than that of the valley at 1,890 metres above the sea. In crossing the Achnenthal at 950 metres, there was a fall of the thermometer, which was soon succeeded by a rise as he continued to climb. In descending the favoured slopes of the mountain he observed several kinds of flowers, some of which generally come out in spring; but a little lower all vegetation was sprinkled with hoar frost. In making his ascent on the sunny side an upward current accompanied him. On the summit a very slight air came from N.E. as long as the sun kept high. Late in the afternoon it had risen to a fresh breeze, and after sunset the N.E. wind was violent. He then made a short descent on the N.E. slope to about 30 or 40 metres from the top. Here he found a calm, and a little lower a breeze blowing down towards the valley. It appeared accordingly that the polar wind divided itself near the top into two streams, one of which turned down into the valley, while the other flowed over the top and then down into the other valley at the foot of the southern slope. This distribution of